

The Improbability Framerate Framework:

A Conceptual Mechanism for How Reality Updates

Author's Note

This paper presents a conceptual mechanism for how discrete informational moments can give rise to continuous experience. It is offered not as a physical theory or computational model, but as a structural explanation that stands independently of any particular ontology or scientific framework. The ideas here are intentionally domain-neutral: they do not presuppose how information is realized, only how one moment may follow another in a coherent and intelligible way. Readers are invited to interpret the mechanism within whatever broader theoretical context they find most natural; the framework itself remains complete regardless of such interpretations.

Abstract

This paper introduces the Improbability Framerate Framework, a conceptual mechanism explaining how a discrete informational universe can produce the continuous experience of reality. Rather than assuming smoothness at the foundation, the framework models each moment as a complete informational state, or Frame, situated within a relational backdrop of possible successors. Continuity arises not from an underlying flow but from the repeated selection of coherent, feasible next states. The Selection Cycle evaluates potential successors by their structural compatibility (coherence), practicality of transition (cost), intrinsic likelihood, and the stabilizing influence of persistent patterns. When one candidate clearly prevails, the update behaves deterministically; when several are equally viable, selection proceeds probabilistically. Through this process, discrete updates become indistinguishable from continuous experience. The framework stands as a self-contained explanation of how identity, motion, and stability can emerge naturally from patterned progression through a landscape of possibilities.

I. Why Continuity Needs a New Explanation

We experience reality as if it flows without interruption. Time seems smooth, motion continuous, identity unbroken. Yet many features of nature suggest this seamlessness is produced rather than fundamental. Quantum events occur in distinct jumps. Information arrives in discrete units. And a perfectly continuous world would require infinite precision to describe even a single moment—something no finite system can sustain.

The Improbability Framerate Framework offers another view. Instead of treating reality as a smooth fabric, it describes the world as advancing through a sequence of discrete informational states called Frames. Each Frame is a complete moment. Continuity emerges from the orderly selection of one Frame after another, not from any underlying smoothness.

This shift—treating continuity as an achievement rather than an assumption—explains how stability, motion, and identity can persist while the underlying process remains discrete. Information, in this context, is simply the structured content of each moment; deeper foundations are unnecessary for the mechanism to operate.

The purpose of this document is to describe how these moment-to-moment selections unfold, and why choosing coherent successors produces the familiar stability of experience.

II. The Frame-Based View of Reality

If reality progresses through discrete steps, each step must be a complete moment. A Frame serves this role: it is the full informational state of the world at a single update—the patterns, relationships, and structures that define “now.”

To imagine how moments evolve, picture each Frame situated among nearby alternatives. These alternatives form the Successor Set: the states that resemble the present closely enough to serve as natural continuations. Their “nearness” is informational rather than spatial; they share enough structure with the current Frame to belong to its immediate neighborhood.

Each candidate in the Successor Set is evaluated along three dimensions. The first is coherence: how well the candidate preserves the organization of the present moment. If a familiar pattern reappears in slightly altered form, coherence is high. If that pattern fractures or disappears, coherence is low. This measure allows identity and structure to persist across updates.

Cost forms the second dimension. It represents the structural effort required to move from the present Frame to a candidate successor. A transition may feel natural yet be difficult to perform, or feel disruptive yet be mechanically easy. Coherence describes compatibility; cost describes feasibility. The two measures remain independent so the system can distinguish what fits from what can realistically occur.

A third influence comes from patterns stable enough to persist across Frames. When such a pattern reappears within a candidate successor, it signals continuity in the developing sequence. While this influence does not determine selection, it marks the reemergence of structure the system has seen before.

These evaluative dimensions give the system the information it needs to distinguish among the possible ways the present moment could continue.

The Selection Operator chooses the next Frame by these weights. When one option clearly dominates, the update behaves deterministically. When several are equally strong, the system selects among them, with ties resolved by random choice.

Through this simple rhythm of evaluation and selection, discrete updates produce the continuous experience of reality. Small, aligned steps accumulate into the stability, motion, and identity we perceive as a flowing world.

III. The Substrate, Coherence, Cost, and the Selection Cycle

To understand how discrete updates generate a continuous world, we look to the structure guiding each transition. In this framework, that structure is provided by the substrate: a stable relational backdrop—conceptual rather than geometric—that determines which states resemble the present closely enough to serve as plausible successors. These nearby candidates form the Successor Set.

This adjacency ensures evolution never stalls. Every state has at least one viable successor, allowing the world to advance moment by moment through coherent pathways embedded in the structure of possibility.

The first measure is coherence, introduced in Section II. Here it functions operationally by favoring successors that preserve recognizable organization, helping maintain stable transitions from one moment to the next without redefining the concept itself.

The second dimension is cost, which evaluates the feasibility of each candidate transition. Even a highly coherent successor may require too substantial a rearrangement to be selected. Cost captures this structural difficulty and prevents the system from choosing successors that, while natural in appearance, are impractical for the mechanism to perform. By balancing cost against coherence, the Selection Cycle maintains both continuity and realism.

The mechanism also considers the reappearance of stable patterns. When a subsystem from earlier Frames shows up again in a candidate successor, it introduces a light stabilizing bias. This influence cannot override coherence or feasibility, but it reinforces transitions that preserve ongoing structure across updates.

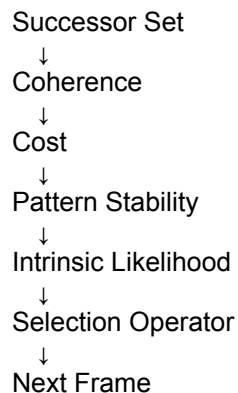
Once these measures are integrated into a single weighting, the mechanism selects a successor. When one option clearly satisfies the evaluative criteria, the update proceeds deterministically. When several options are comparably weighted, the mechanism selects among them without preference. This interplay between determined and undetermined transitions follows directly from how the measures interact.

This produces the Selection Cycle:

1. The substrate provides a set of nearby possibilities.
2. Coherence evaluates how naturally each option continues the present.
3. Cost evaluates the feasibility of each transition.
4. Stable patterns gently reinforce candidates that preserve them.
5. The Selection Operator chooses the next Frame, deterministically or by sampling in cases of equal strength.

Through this rhythm of evaluation and selection, reality advances one discrete moment at a time. Continuity arises not from a smooth underlying fabric but from repeatedly choosing successors that preserve patterns, minimize disruption, and follow the structure embedded in the space of possibilities. The flow of time, the persistence of identity, and the stability of experience emerge from this cycle operating at immense speed.

Figure 1 — The Selection Cycle summarizing the mechanism described in Section III.



IV. How This Mechanism Fits Into the Oakbrook Cosmology

The Improbability Framerate Framework does not claim a specific physical ontology. Instead, it offers a clear mechanism for how discrete informational moments can produce the stable continuity we experience. Its strength lies in showing how identity, motion, and structure persist even when the underlying process advances step by step.

Philosophically, the framework complements views that emphasize coherence, intelligibility, and the preservation of form across change. It translates these themes into a concrete mechanism: each moment is chosen from nearby possibilities that align with the present, maintain recognizable patterns, and avoid excessive disruption.

The framework is deliberately modular. It describes how moments succeed one another without committing to what deeper structures support them. Because of this separation, the mechanism remains timeless. Any formal interpretation of information or structure may be paired with it, yet the mechanism itself requires none to function.

IFF also clarifies how continuity of self and world can arise naturally. Patterns persist because the system consistently selects successors that preserve them. What we recognize as identity is the trace of patterns following paths through the space of possible states.

The Improbability Framerate Framework stands as a complete conceptual engine through which discrete informational change gives rise to the continuity of lived experience.

APPENDIX — HOW IFF RELATES TO OTHER FRAMEWORKS

The Improbability Framerate Framework is a conceptual mechanism, not a physical or computational theory. Because it speaks about discrete updates, informational structure, and continuity, it naturally touches ideas found in several intellectual traditions. This appendix clarifies how IFF aligns with and differs from those views.

Causal set theory treats reality as discrete events linked by order. IFF shares the theme of discreteness, but focuses on how one moment is selected from nearby possibilities rather than on establishing event order.

Digital physics and cellular automata posit rule-driven evolution on grids. IFF avoids this model entirely. It requires no grid, no external computation, and no fixed rule table. Its transitions depend on coherence, feasibility, and pattern stability—not algorithmic execution.

Quantum mechanics includes probabilistic transitions and meaningful observation. IFF echoes these themes conceptually but is independent of quantum formalisms. It does not rely on wavefunctions or physical collapse. Probability in IFF simply weighs among structurally allowed options.

Information-theoretic perspectives view information as fundamental. IFF agrees that patterns matter, but makes no claims about physical information or coding. It describes how informational states succeed one another, not what information is made of.

Process philosophy emphasizes becoming over static being. IFF matches this emphasis but offers a concrete mechanism for how each “becoming” occurs: through the ordered selection of one moment from a set of coherent possibilities.

Simulation hypotheses propose external generation. IFF has no such requirement. Its mechanism is internal, self-contained, and compatible with any metaphysical background.

In summary, IFF stands near these ideas without belonging to them. It shares themes—discreteness, emergence, informational structure—while remaining an independent account of how continuity arises through well-chosen transitions.